

18. (Added) A method as set forth in Claim 17, wherein said step of establishing said geographical cell definition comprises:

identifying a set of subcells corresponding to said geographical zone and storing first zone information relative to said set of subcells;

identifying, from said set of subcells, a subset of said subcells corresponding to a particular cell of said first level of said hierarchical data structure; and

storing second zone information generally corresponding to said first zone information, but wherein information regarding said subset of subcells is replaced with information regarding said particular cell of said first level of said hierarchical data structure, thereby facilitating storage and processing of said geographical zone definition.

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19. (Added) A method as set forth in Claim 17, wherein said step of establishing a hierarchical data structure comprises establishing a quadtree data structure.

20. (Added) A method for constructing a representation of an area that includes an area of interest and is suitable for use in high-speed wireless telecommunication application that requires a determination of whether a location associated with a wireless station is within the area of interest, the method comprising:

receiving a map of an area of interest in a telecommunication application;

vectorizing the boundaries of the area of interest to define a polygon having a plurality of edges that enclose an area;

first establishing a hierarchical data structure for representing said area of interest, the hierarchical data structure including a first level where said area of interest is represented by cells and second level where said area of interest is represented by subcells, said subcells of said second level corresponding to smaller geographical areas than said cells of said first level;

second establishing, for at least one cell of said first level that identifies said polygon and for at least one subcell of said second level that identifies said polygon, indicators that indicate that the associated cell and subcell identify said polygon;

wherein said indicators can subsequently be used to determine if the location associated with a wireless station is within said polygon.

21. (Added) A method, as claimed in Claim 20, wherein said step of second establishing includes:

determining if all subcells of the second level that correspond to a given cell of the first level ("corresponding subcells") have indicators;

establishing, if all corresponding subcells have indicators, an indicator for the given cell; and

removing, if all corresponding subcells have indicators, the corresponding subcells from the hierarchical data structure.

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22. (Added) An apparatus for use in connection with a wireless network for determining if a wireless station is within an area of interest, said apparatus comprising:

memory for storing a definition of said area of interest in terms of a hierarchical data structure, the hierarchical data structure including first level where the area of interest is represented by cells and a second level where the area of interest is represented by subcells, said subcells of said second level corresponding to smaller geographical areas than the cells of said first level, said definition including information identifying at least one identified cell of said first level and at least one identified subcell of said second level, such that said area of interest is collectively defined by said identified cells and subcells; and

a processor for receiving a location associated with a wireless station and determining whether or not the location associated with the wireless station is within the area of interest by using the location associated with the wireless station and the stored definition including said identified cells and subcells.

23. (Added) An apparatus as set forth in Claim 22, wherein said definition is stored in terms of a quadtree data structure.
